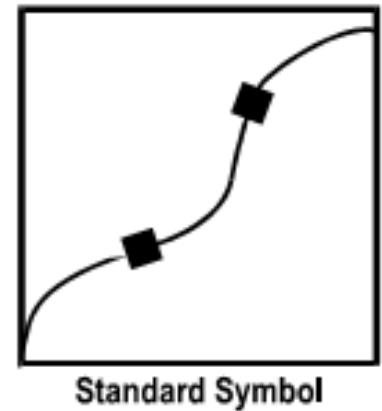


## SC-7 SILT FENCE

Refer to: ITD Standard Specifications, Sections 212 and 718

ITD Standard Drawing P-1-B

QPL Category: 212 Silt Fence



### Definition and Purpose

Perimeter protection (silt fences) consists of permeable geotextile material stretched and attached to supporting posts that assists in sediment containment by capturing/intercepting most of the eroded soil particles (sediment) and slowing the runoff velocity to allow particle settling. Welded wire fabric backing may be necessary, with several types of geotextile commonly used.

### Appropriate Applications

The fences should remain in place until the disturbed area is permanently revegetated and stabilized.

- Downslope perimeter of a disturbed area to intercept sediment.
- Below the toe of exposed and erodible slopes while allowing water to pass through.
- Toe of fills.
- Downhill side of large cut areas, along streams and channels.
- At natural drainage areas to reduce the quantity of sediment and dissipate flow velocities to downstream areas.
- At grade breaks on cut or fill slopes and above interceptor dikes, berms, channels, or ditches.

#### BMP Objectives

- |                                     |                       |
|-------------------------------------|-----------------------|
| <input checked="" type="checkbox"/> | Perimeter Control     |
| <input type="checkbox"/>            | Slope Protection      |
| <input checked="" type="checkbox"/> | Borrow and Stockpiles |
| <input checked="" type="checkbox"/> | Drainage Areas        |
| <input checked="" type="checkbox"/> | Sediment Trapping     |
| <input checked="" type="checkbox"/> | Stream Protection     |
| <input type="checkbox"/>            | Temporary Stabilizing |
| <input type="checkbox"/>            | Permanent Stabilizing |

## Limitations

- Shall not be used at the top of a slope.
- Shall not be used in a live stream, ditch, channel, or drainage way or where soil conditions prevent a minimum toe-in depth of 6 inches or installation of support posts to a minimum depth of 24 inches.
- Are not effective unless trenched and keyed in.
- Are not intended for use as mid-slope protection on slopes steeper than 1V:4H.
- Must be maintained.
- Must be removed and disposed of.
- Shall not be used below slopes subject to creep, slumping, or landslides.
- Shall not be used in streams, channels, drain inlets, or anywhere flow is concentrated.
- Shall not be used to divert flow.
- Compost berms should not be used in areas with high-concentrated runoff or high-velocity flows such as ditches, channels or streams.

## Design Parameters

Silt fences will be designed with the following parameters:

- Slope of area draining to silt fence shall be less than 1V:1H.
- Silt fences shall not be used in concentrated flow areas.
- For slopes steeper than 1V:2H and that contain a high number of rocks or large dirt clods that tend to dislodge, it may be necessary to install additional protection immediately adjacent to the bottom of the slope, prior to installing silt fence. Additional protection may be a chain link fence or a cable fence.
- For slopes adjacent to water bodies or Environmentally Sensitive Areas (ESAs), additional temporary soil stabilization BMPs shall be used.

## Materials

- Wood stakes shall be commercial quality lumber of the size and shape shown on the plans. Each stake shall be free from decay, splits or cracks longer than the thickness of the stake, or other defects that would weaken the stakes and cause the stakes to be structurally unsuitable.
- Bar reinforcement may be used, and its size shall be equal to a number four (4) or greater. End protection shall be provided for any exposed bar reinforcement.
- Staples used to fasten the fence fabric to the stakes shall be not less than 1.75 inches long and shall be fabricated from 0.06-inch or heavier wire. The wire used to fasten the tops of the stakes together when joining two sections of fence shall be 0.12-inch or heavier wire. Galvanizing of the fastening wire is not required.

## Qualified Products List Criteria

See QPL Category: 212 Silt Fence.

### Installation

In most instances, silt fences should be used on the toe of a slope or disturbed areas where surface water will run off the construction site. Install silt fence perpendicular to the flow of water. Install perimeter protection after clearing and grubbing and before excavating haul roads, benches, or any soil-disturbing construction activity.

- Generally, silt fences shall be used in conjunction with soil stabilization source controls up slope to provide effective erosion and sediment control.
- Trenches shall not be excavated wider and deeper than necessary for proper installation of the temporary linear sediment barriers.
- Excavation of the trenches shall be performed immediately before installation of the temporary linear sediment barriers.
- Silt fences shall be constructed with a set-back of at least 3 feet from the toe of a slope. Where a silt fence is determined not to be practical due to specific site conditions, the silt fence may be constructed at the toe of the slope, but shall be constructed as far from the toe of the slope as practical.
- Cross barriers shall be a minimum of one-third and a maximum of one-half the height of the linear barrier.
- Geotextile shall not be attached to trees.
- When welded wire fabric is used, the wire fabric shall be fastened to the upslope side of the posts using heavy-duty wire staples, tie wires, or hog rings. The wire fabric support shall be extended to the bottom of the trench.
- Designated vegetated areas shall not be disturbed.
- Field adjustments shall be made as necessary to ensure proper performance.

### **Maintenance and Inspection**

- Conduct inspections as required by the NPDES permit or contract specifications.
- Silt fences that are damaged and become unsuitable for the intended purpose, as determined by the Engineer, shall be removed from the site of work, disposed of outside the highway right-of-way in conformance with the Standard Specifications, and replaced with new silt fence barriers.
- If concentrated surface flow occurs after installation, take corrective action by placing rock berms or other corrective measures in the areas of concentrated flow to direct and spread the flow.
- Remove the silt fence when no longer needed, after final acceptance of the project, or as required by the Engineer. When the silt fence is removed, cut the geotextile at ground level, remove the wire and post, fill and compact post holes and anchorage trench, spread

the sediment, prepare for seeding, and grade fence alignment to blend with adjacent ground.

- Repair undercut silt fences.
- Repair or replace split, torn, slumping, or weathered fabric. Holes, depressions, or other ground disturbance activities caused by the removal of the temporary silt fences shall be backfilled and repaired in conformance with the Standard Specifications.